NATURAL HISTORY MISCELLANY.

BOTANY.

COLLECTED NOTES ON THE HISTORY OF THE AMERICAN OAKS. — The first American oak noticed in botanical works is the white oak, mentioned by Parkinson in "Theatrum Botanicum," 1640, as *Quercus alba Virginiana*. Banister, 1686, in "Catalogus Plantarum in Virginia Observatarum" (in Rayi Historia) mentions *Quercus alba virens* (as *Virginiana sempervirens*), *Phellos* (as *Ilex Marilandica*) with a drawing by Ray, and *ilicifolia* Wg. (as *Q. pumila*).

Pluckenet in "Amagestum Botanicum," 1696, enumerates *Quercus esculi divisura*, which is *Q. rubra* L., *Q. Americana rubris venis* (*Q. coccinea* Wg.), var. γ (DC.), *Q. Virginiana salicis longiore folio* (*Q. Phellos* L.), *Q. Virginiana sempervirens* (*Q. virens* Ait.), *Q. castaneæ folio* (*Q. prinus palustris* Michx.), *Q. pumila castaneæ folio Virginiensis* (*Q. prinus pumila* Michx.), *Q. rubra*, *Phellos* and *Prinus palustris*, are illustrated.

Catesby in his "Natural History of Carolina," 1731, names *Q. alba*, *Prinus palustris* and *virens*. *Q. nigra* L., he calls *Q. Marilandica*; *Q. aquatica* Walt., he knows under the name *Quercus folio non serrato*; his *Q. esculi divisura* is *Q. Catesbœi* Michx., and his *Q. humilis salicis folio breviore* is *Q. cinerea* Michx.; all except the latter are illustrated.

Charlevoix in "Histoire et description générale de la Nouvelle France," Paris, 1744, knows *Q. prinus palustris* Michx., *Q. alba* L., *Q. virens* Ait., and *Q. nigra* L.; he gives drawings of the three latter.

In Gronovius' "Flora Virginica," 1743, containing the plants which John Clayton observed in Virginia, we find *Q. Phellos*, *nigra*, *aquatica*, *Prinus palustris*, *ilicifolia*, which he calls *Q. pumila bipedalis*, *Q. stellata* Wg. (to him *Q. alba*) and *falcata* Michx., which he calls *rubra seu hispanica*.

Kalm in his travels, or rather in his "Preliminary Report on his Botanical Collections," 1751, mentions only four oaks. *Q. rubra* and *alba*, the Spanish oak (*Q. falcata* Michx.) and another one with three lobes at the apex of the leaves, which is perhaps the var. *triloba* of the latter (*Q. triloba* Michx.). These are the American oaks known at the time when Linnæus' "Species Plantarum," 1753, was published. Linné established five species, *Q. Phellos*, comprising *Q. virens* and *cinerea* as varieties β and γ. *Q. nigra* *x* and β (*x* being *aquatica* Walt.), *Q. rubra*, comprising *rubra*, *coccinea* and *Catesbœi*, *Q. prinus* (*Q. prinus palustris* Michx.) and *Q. alba*.

Du Roi published (in "Harbke'she wilde Baumzucht," Braunschweig, 1771) a new species, *Q. palustris*.

Marshall published his "Arbustum Americanum," in 1785, in which he described the following oaks: *Q. alba*, *Q. alba minor=stellata* Wg., *Q. alba palustris*, which is apparently *Q. Prinus tomentosa* Michx., not *Q.*

alba. as Michaux says; *Q. nigra=coccinea* (*Q. tinctoria* Bartr.), *Q. nigra digitata*, *Q. nigra trifida*, *Q. nigra integrifolia*, the two latter certainly falling under *Q. nigra* L. var. *β*, *Q. nigra pumila=Q. ilicifolia* Wg., *Q. rubra; Q. rubra ramosissima=Q. palustris* Du Roi; *Q. rubra montana=Q. falcata* Michx.; *Q. rubra nana=Q. Catesbœi* Michx.; *Q. Phellos angustifolia* and *latifolia=Q. Phellos* L. (*silvatica* Michx.); *Q. Phellos sempervirens=Q. virens* Ait.; *Q. Prinus=Q. Prinus monticola* Michx.; *Q. Prinus humilis= Q Prinus pumila* Michx.

Wangenheim in his work on the "Americanische Holzarten," 1787, proposed some new species, of which three are acknowledged to-day: *Q. stellata* (the *Q. alba minor* of Marshall), *Q. ilicifolia* (the *Q. pumila* of Banister), and *Q. coccinea* (*Q. rubra* L., var. *α*). His *Q. cuneata* is *Q. falcata* Michx., var. *γ triloba*, and his *Q. uliginosa* is the *Q. aquatica* Catesby.

Walter in "Flora Caroliniana," published in the year 1788, enumerated thirteen oaks: 1, *Q. sempervirens* (*virens* Ait.); 2, *Q. Phellos;* 3, *Q. humilis* (*cinerea* Michx., var. *γ. humilis*); 4, *Q. pumila* (*cinerea* Michx., var. *pumila*); 5, *Q. Prinus;* 6, *Q. nigra;* 7, *Q. aquatica* (*nigra* L., *α*); 8, *Q. rubra* (*glandibus parvis globosis*, perhaps *Q. ilicifolia* Wang.?); 9, *Q. lævis* (Catesbæi, Michx.?); 10, *Q. alba;* 11, *Q. lyrata*, which he first describes; 12, *Q. sinuata*, from the description of which it is not plain what it means; 13, *Q. villosa* already described by Wangenheim as *Q. stellata*. Michaux gives Catesby, who indeed described, but did not name it, the authorship of *Quercus aquatica*. De Candolle makes Walter the author of it; the latter published his Flora one year after the publication of Wangenheim's work, in which the species is described and called *uliginosa*. The descriptions of both the authors are as poor as possible; both the names derived from the hygrophile nature of the tree are good enough, only that the right of priority, acknowledged as a general rule by the international Botanical Congress at Paris, is in favor of Wangenheim's name. But the name *aquatica* is indeed older, and was first used by Clayton in *Gronovius*, so his name should be added. By the way, Walter is noteworthy for his modesty, which should be imitated by many an eager species-maker. His work is full of "Anonymos," and in the preface he says: "*Libertatem appellative assignandi paucis tantum concedendam sentit, quamobrem iis, qui in hac scientia merito duces sunt, jus reliquit dicendi quænam sint nomina plantis nunc primum descriptis.*" If so many botanists, who, overrating the doubtful merit of having created a new species, fill our botanical books with names, would follow modest old Walter, a good deal of wasted paper could be saved, and a good deal of unnecessary work. Indeed, it is much easier to make new species, than to clean those Augean stables of synonyms.

Aiton in "Kew Garden," 1789, calls the long-known *Q. sempervirens* of Catesby *Q. virens;* the latter name is adopted.

William Bartram, in his "Travels through North and South Carolina," Phil. 1791, proposes the new species *Q. tinctoria*, which De Candolle in

his Prodromus reunites with *Q. coccinea* Wg., as var. *γ tinctoria*. Bartram's *Q. hemispherica* and *dentata* are both varieties of *Q. aquatica*.

Luis Née joined the expedition of Malaspina from 1789 to 1794; he visited South America, Mexico and the Pacific Islands, and brought in his rich botanical collections to Europe, the first specimens of oak from those countries, which have been published in "Annales de Ciencias Naturales" by Cavanilles, 1798. Amongst these oaks are two California species, *Q. lobata* and *agrifolia;* the latter was already known to Plucknet as *Ilex foliis agrifolii Americana* (in "Phytographia," London, 1691–93, with a drawing, but without flower or fruit); the others are Mexican, *Q. circinata*, *magnoliæfolia*, *salicifolia*, *microphylla*, *splendens*, *acutifolia*, *elliptica*, *castanea*, and *candicans*, all considered yet to be "good species." His *Q. lutea* and *macrophylla* come under *magnoliæfolia;* his *diversifolia* is a variety of *Q. peduncularis* Née, changed by Willdenow into *Q. tomentosa*, because the character Née took the name from is variable, and Neè's specimen is defective; *Q. rugosa* Humboldt and Bonpland changed into *Q. crassifolia*, Née's unique specimen being very defective and doubtful.

André Michaux explored from 1785 to 1796 the forests of Eastern North America. He published in 1801 his "Histoire des Chênes l'Amérique Septentrionale," in which for the first time is pointed out a character, very important to the methodical arrangement of the oaks, the time of maturation. His arrangement is the following:

I. The leaves of the old tree not bristle-pointed: fruit peduncled, annual.
   1. Leaves lobed. *Q. obtusiloba* (*stellata* Wg.), *macrocarpa* (n. sp.) *lyrata* Walt., *alba* L.
   2. Leaves toothed. *Q. Prinus*, with 5 varieties: *palustris*, *monticola*, *acuminata*, *pumila* and *tomentosa*.
   3. Leaves entire. *Q. virens*, but the fruits are according to him biennial.

II. Leaves of the old tree bristle-pointed: fruit sessile, biennial.
   1. Leaves entire. *Q. Phellos*, with three varieties, *silvatica*, *maritima*, and *pumila*. *Q. cinerea*, *Q. imbricaria* (n. sp.), *Q. laurifolia*, with the variety *obtusifolia*.
   2. Leaves with short lobes. *Q. aquatica*, *Q. nigra*, *Q. tinctoria*, with two varieties (*angulosa* and *sinuosa*), *Q. triloba*.
   3. Leaves deeply lobed. *Q. Banisteri* (*ilicifolia* Wg.), *Q. falcata* (*hispanica* Clayton, *discolor* Ait., *elongata* Willd.), *Q. Catesbœi*, *Q. coccinea* Wg., *Q. palustris* Du Roi and *Q. rubra* L.

The same species are enumerated in his "Flora Americana," published by L. C. Richard, but without this arrangement. The ripening of fruit is not there mentioned at all.

Willdenow in "Species Plantarum," 1797–1810, enriched (?), the genus Quercus by new species, making out of the five varieties of Prinus, five species: *Prinus*, *montana*, *bicolor* (*tomentosa*), *castanea* (*acuminata*) and *Prinoides* (*pumila*); the varieties of *Phellos*, *maritima* and *pumila* he

changed into two species of the same name; *tinctoria* var., *sinuosa* into *discolor*, and his *Q. myrtifolia* is probably a variety of *Q. aquatica*.

Persoon in "Synopsis Plantarum," 1805 enumerates eighty-five oaks, of which forty-six are American; thirty from the eastern part of North America, two Californian and fourteen Mexican; all mentioned above.

F. A. Michaux, the son, published his "Arbres forestières," 1810–13. He calls *Q. Prinus tomentosa* of his father *Q. Prinus discolor*, and proposed five new species: *Q. heterophylla*, which proves to be an hybrid; *ambigua* and *borealis*, which fall under *Q. coccinea; ferruginea*, which is *Q. nigra* L. β.; and *olivæformis*, which is *macrocarpa*.

Humboldt and Bonpland collected (1799–1804) twenty-three new species, of which thirteen are now considered as good ones: *Q. confertifolia*, *crassifolia*, *crassipes*, *depressa*, *Humboldtii*, *lanceolata*, *laurina*, *obtusata*, *pulchella*, *repanda*, *reticulata*, *Tolimensis*, *Xalepensis;* four are dubious: *Q. Amalguerensis*, *chrysophylla*, *glaucescens* and *sideroxyla;* three had been described already by Née: *Q. stipularis* = *splendens* Née; *tridens* = *castanea* Née var. γ, and *Mexicana* = *Castanea* Née var. *E*; three are the same as other species of the same authors: *Q. spicata* is *reticulata* H. B.; *pandurata* and *ambigua* are *obtusata* H. B., var. β and γ. They are all Mexican, except three from New Granada: *Humboldtii*, *Tolimensis* and *Almaguerensis*. They are described in "Plantæ Æquinoctiales," 1805–1818.

In Pursh's "Flora," 1814, are mentioned thirty-four species; except *agrifolia*, all are eastern and comprising all the species of Michaux, with the additions of the younger Michaux and Willdenow. In his arrangement the ripening o the fruit takes the first place as a diagnostic character, the second the presence or absence o the bristles of the leaves; the third the form of the leaves.

Nuttall in "Genera of North American Plants," 1818, follows the same disposition, but the number of his species is thirty-two. He calls *Q. Prinus discolor* Mich. fil. *Q. Michauxii*, but at the same time he keeps *Q. bicolor* Willd. as a species with the variety *mollis* (probably *Q. velutina* Lam., which he believes is *Q. filiformis* Muhl.). Afterwards he proposes three more species: *Q. Gambelli*, *Leana* (a hybrid) and *dumosa* (in "Silva Americana,") a doubtful species. Of Mexican species he knew only fifteen.

Elliott in a "Sketch of the Flora of Georgia," 1824, enumerating twenty-six oaks, adds to those already known, a variety of *falcata* Michx. (var. *pagodæfolia*).

Chamisso and Schlechtendal, 1830, in "Linnæa," v., described some new Mexican oaks from specimens collected by Schiede and Deppe: *Q. calophylla*, *polymorpha*, *laurifolia*, *germana* and *oleoides*, the latter being *Q. virens* Ait. These make the western species amount to thirty-six.

Hooker and Arnott published in 1841, the "Botany of Capt. Beechey's Voyage," comprising the plants which Lay and Collie, 1825–28, collected. We find amongst them three oaks, two Californian: *Douglasii* and *densiflora*, and one Mexican: *aristata*. In "Hooker's Flora boreali Americana,"

1833–40, is described as new *Q. Garryana* by Menzies and Douglas, found in Oregon; and in "Icones," 1837–45; *Quercus corrugata* from Guatemala.

Bentham describes in the Botany of the voyage of the Sulphur, under command of Capt. Belcher, the collections of Barclay, Hinds and Sinclair. He proposes a new species of oak, *Quercus Hindsii*, from California which is nothing else than *Q. lobata* Née.

From the same author are the "Plantæ Hartwegianæ," 1839–42, containing the plants which Hartweg, 1836–40, collected in Mexico, etc. There we find a number of new species: *Q. barbinervis*, *glabrescens*, *Grahami*, *Skinneri*, *Sonomensis*, *dysophylla*, *undulata*, *salicifolia*, the two latter names, as already used, De Candolle changed into *Benthami* and *Tlapuxahuensis*. Others had already been described: *Q. Mexicana* is *crassipes* H. B., *Alamo* = *callophylla*, Cham. and Schl., *Hartwegi* = *obtusata* H. B., *petiolaris* = *polymorpha* Cham. and Schl., *callosa* = *tomentosa* Willd. Others are varieties; *tomentosa* = *tomentosa* Willd., var., *compressa* = *acutifolia* var., *laurifolia* = *densiflora* Hook, Arn. var. *β*. Hartwegi; *Douglasii* = *Douglasi*. Hook. Arn. var.; one proposed as a variety was afterwards taken as a species by Liebmann: *Q. obtusata* var. = *Q. laeta* Liebm. At the same time two Belgian botanists, Galeotti and Ghiesbreght, travelled in Mexico, and collected many oaks, which have been published, 1843, in "Bulletin of the Académie des Sciences of Bruxelles," by Galeotti and Martens: *Q. lanigera*, *lutescens*, *Ghiesbreghtii*, *nitens*, *insignis*, *rugulosa*, *glaucoides*, *callosa* (the latter described by Liebmann as *Q. laxa*); *Q. Galeottii*, *cordata*, *pubinervis* (not in Prodromus, perhaps *strompocarpa* Liebm.), *mollis* (perhaps *crassifolia*), are doubtful. Such as were already described are *Q. varians* = *polymorpha* Ch. and Schl., *nitida* = *acutifolia* Née, *acuminata* and *intermedia* = *calophylla* Ch. Schl., *spinulosa* = *crassifolia* H. B., *affinis* = *obtusata* H. B., *decipiens* = *reticulata* H, B., *laurina* = *depressa* Bth., *lanceolata* (not H. B.) = *Oaxacana* Liebm.

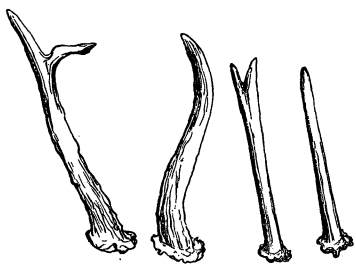
Liebmann travelled in Mexico in 1841-43. His own collection and those of Oerstedt and of Seemann furnished the material for his great work on "American Oaks." The new species are *Q. granulata*, *linguæfolia*, *nectandræfolia*, *berberidifolia*, *citrifolia*, *Costaricensis*, *Seemanni*, *Sartorii*, *Cortesii*, *læta*, *Drummondii*, *strompocarpa*, *grandis*, *Warscewiczii*, *chrysolepis*. Species already described are *Q. Fendleri*=*undulata* Torr. (in Annals Lyceum of New York, 1827), *furfurarea*=*acutifolia* H B., *commutata*=*nitens* M. G., *tristis*=*castanea* Née, *tuberculata*=*polymorpha* Cham. & Schl., *retusa* =*virens* Ait.; varieties of described species are *Q. resinosa*=*magnoliæfolia* Née, *γ rudinervis*=*obtusata* H. B. *γ*, *Neœi*=*Douglasii* var. *γ*, *longifolia*= *acutifolia* var. *ocotæfolia*=*nitens* var. *γ*, *perseæfolia* and *microcarpa*=*elliptica* Née var. His *Q. oocarpa* is the same as his *Warczewiczii*; what he took for *laurina* is *lanceolata* H. B., var. *β*.; *Q. Grahami* Bth., is *acutifolia* Née, his *lancifolia* is a new species by A. DeCandolle changed into *leiophylla*; *Q. bumelioides*, *cuneifolia* (*Chinantlensis*), *excelsa*, *eugeniaefolia*, *flavida*, *floccosa*, *fulva*, *jurgensenii*, *Oaxacana*, *Orizabae*, *sapotaefolia*, *Segoviensis*, *serra*, *sororia*, *scytophylla*, *turbinata* (by A. DC., changed into *Guatimalen-*

sis), are doubtful species. From Wright's collection he described Q. *pungens*, *hastata* and *grisea*, already published by Torrey, the two former as *Q. Emoryi* (in Emory's Report) the latter as *Q. oblongifolia* in Sitgreaves' Zuni Expedition. Other species of Torrey had been already named, when he published them: *Q. crassipocula* (in Williamson's Report) is *chrysolepis* Liebm., described in "Plantæ Hartwegianæ;" *Q. tinctoria* var. *Californica* (in Whipple's Report) is *Sonomensis* Bth.; *longiglanda* in "Frem. Geogr. Mem. of Cal.," is *lobata* Née; *echinacea* (in Whipple's Rep.) is *densiflora*, *oxyadenia* (in Sitgreaves' Report) is *agrifolia* Née. In "Mexican Boundary Survey" (1858), is a new species described as *Q. acutidens* from California, omitted by De Candolle; another, *obtusifolia*, falls under *undulata* Torr., as a variety; another variety is there mentioned, *Q. coccinea* var. *microcarpa*. Kellogg published in the "Proceedings of the California Academy of Sciences," vol. i, some new species, which are not new: *Q. fulvescens* is *chrysolepis* Lbm.; *acutiglandis* is *agrifolia* Née; *Ransomi* is *lobata* Nèe. His *Q. Morchus* (Proc. Cal. Acad. Sci. ii) is doubtful. Newberry proposed what Torrey took for a variety of *tinctoria* (*i. e. coccinea*), as a new species, *Q. Kelloggii*, which falls under *Sonomensis* Benth. Curtis, 1849, proposed a new eastern species, *Q. Georgiana*. Shuttleworth's *Q. Floridana* is the var. *β. Floridana* of *Q. stellata* according to De Candolle, perhaps Chapman's var. *parvifolia?* Endlicher in "Genera Plantarum," Suppl. iv, 2, 1847, enumerates one hundred and ninety-seven described oaks, of which one hundred and one are American. — FRED. BRENDEL, *Peoria, Ill.* (*To be concluded.*)

ZOOLOGY.

SPIKE HORNS. — The article in the December number of the NATURALIST seems to me to be the result of careless observation. The 'Common Deer," *Cervus Virginianus*, 'begins growing his first pair of horns when about one year old; these horns are from four to nine inches long and sometimes one of them will have a single branch of an inch or two long; these horns are shed when the animal is about two years old (Fig. 67). At this age I have seen deer that had attained their full growth in height, and to an ordinary observer would be thought old animals.

Fig. 67.



The number of persons hunting in the Adirondacks increases very rapidly, and every hunter is bent on procuring a fine pair of horns as a trophy, and as it takes at least six or eight years for a buck to grow a fine